AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A two-dimensional beam writing position detecting device, comprising:

an optical system for scanning on a photoconductor by laser beams emitted from a semiconductor laser to form an electrostatic latent image and arranging a plurality of the laser beams in two dimensions and slantingly scanning the plurality of laser beams ~~each the laser beam~~ for forming the electrostatic latent image on the photoconductor at a predetermined angle (θ); and

a detector for detecting the plurality of laser beams for determining a ~~the~~ first writing position of the plurality of laser beams on the photoconductor ~~of the laser beams~~,

wherein a longitudinal direction of a ~~beam~~ light beam receiving surface of the detecting device inclines at the substantially same angle (θ 1) as the slant scanning angle (θ) with respect to the perpendicular of a scanning direction of the plurality of laser ~~plural~~ beams.

2. (Currently amended) The two-dimensional beam writing position detecting device according to claim 1, wherein the angle (θ 1) of inclination of the longitudinal direction in the ~~beam~~ light beam receiving surface of the detecting device is within a ~~the~~ range represented by an ~~the following~~ expression:

$\theta 1 = \theta \pm \tan^{-1}$ [a beam radius / (P2 x a ~~the~~ number of beams of a primary scanning direction)]

where P2 in the expression is a beam pitch of a sub-scanning direction.

3. (Currently amended) The two-dimensional beam writing position detecting device according to claim 1,

wherein a length S1 of a laser beam sub-scanning direction of the ~~beam~~ light beam receiving surface of the detecting device is greater ~~more~~ than or equal to a value in which a beam diameter is added to a value in which a beam pitch P2 of the sub-scanning direction is multiplied by [(a ~~the~~ number of beams of the sub-scanning direction)-1], and a length S2 of a laser beam scanning direction of the ~~beam~~ light beam receiving surface is less than [(a beam pitch P1 of the scanning direction)-(a beam diameter)].

4. (Currently amended) The two-dimensional beam writing position detecting device according to claim 1, wherein the ~~beam~~ light beam receiving surface of the detecting device is partitioned and ~~formed by~~ includes a slit.

5. (Currently amended) The two-dimensional beam writing position detecting device according to claim 1, wherein the ~~beam~~ light beam receiving surface of the detecting device ~~is formed by~~ comprises a photodetector.

6. (Currently amended) The two-dimensional beam writing position detecting device according to claim 1,

wherein a signal of ~~detected by~~ a scanning direction beam of a ~~the~~ first row or a ~~the~~ plurality-th row detected by a ~~on a beam~~ light beam receiving surface of the detecting device is formed into a writing position signal on a photoconductor of a ~~the~~ scanning direction beam of the first row, and a writing position signal on the photoconductor of the scanning direction beam of a ~~the~~ second or subsequent row is formed into a signal in which a ~~particular~~ delay or lead is provided so that a scanning direction writing position on the photoconductor of the second or subsequent row aligns ~~matches~~ with a scanning direction writing position ~~the beam~~ of the first row on the photoconductor ~~with respect to the signal obtained by the above~~.

7. (Currently amended) A two-dimensional beam writing position detecting device, comprising:

an optical system for scanning on a photoconductor by laser beams emitted from a semiconductor laser to form an electrostatic latent image and arranging a plurality of the ~~semiconductor~~ laser beams in two dimensions and slantingly scanning the plurality of laser beams ~~each the laser beam~~ for forming the electrostatic latent image on the photoconductor at a predetermined angle (θ); and

a detector for detecting the plurality of laser beams for determining a ~~the~~ first writing position of the plurality of laser beams on the photoconductor ~~of the laser beams~~,

wherein a signal of ~~detected by~~ a scanning direction beam of a ~~the~~ first row or a ~~the~~ plurality-th row detected by ~~on~~ a ~~beam~~ light beam receiving surface of the detecting device is formed into a writing position signal on the photoconductor of the scanning direction beam of the first row, and a writing position signal on the photoconductor of the scanning direction beam of a ~~the~~ second or subsequent row is formed into a signal in which a ~~particular~~ delay or lead is provided so that a scanning direction writing position on the photoconductor of the second or subsequent row aligns with a scanning direction writing position on the photoconductor of the first row obtained by ~~matches with~~ the writing position signal of the scanning direction beam of the first row ~~with respect to the signal obtained by the above~~.

8. (Currently amended) An image forming apparatus wherein a two-dimensional beam writing position detecting device according to claim 1 is installed in a beam scanning position that is not ~~on beam scanning and other than~~ on a scanning line of the photoconductor.

9. (Currently amended) An image forming apparatus wherein a two-dimensional beam writing position detecting device according to claim 1 is installed in a beam scanning position that is not ~~on beam scanning and other than~~ on a scanning line of the photoconductor.

10. (New) A two-dimensional beam writing position detecting device, comprising:

an optical system for scanning a plurality of light beams on a photoconductor to form an electrostatic latent image, arranging the plurality of light beams in two dimensions, and slantingly scanning the plurality of light beams for forming the electrostatic latent image on the photoconductor

at a predetermined slant angle (θ) with respect to a scanning direction of the plurality of light beams; and

a detector for detecting the plurality of light beams for determining a first writing position of the plurality of light beams on the photoconductor, said detector comprising a light beam receiving surface,

wherein a longitudinal direction of the light beam receiving surface is disposed at an angle (θ 1) with respect to the scanning direction of the plurality of light beams, and

wherein the angle (θ 1) is substantially equal to the predetermined slant scanning angle (θ) for simultaneously detecting the plurality of light beams in at least one dimension.

11. (New) The two-dimensional beam writing position detecting device according to claim 10, wherein said detector is disposed in a position of beam scanning that is not within a scanning width of the photoconductor.

12. (New) The two-dimensional beam writing position detecting device according to claim 10, wherein said detector comprises a high-speed PIN photodiode.

13. (New) The two-dimensional beam writing position detecting device according to claim 10, further comprising a print data writing control circuit for obtaining a writing signal of a scanning direction beam of a first row and a writing signal of a scanning direction beam of a second row.

14. (New) The two-dimensional beam writing position detecting device according to claim 10, further comprising a laser modulation circuit for aligning a writing position of a first row of a scanning direction beam on the photoconductor and a writing position of a second row of a scanning direction beam on the photoconductor in a sub-scanning direction of the photoconductor.

15. (New) The two-dimensional beam writing position detecting device according to claim 13,

wherein the print data writing control circuit comprises a delay circuit.

16. (New) The two-dimensional beam writing position detecting device according to claim 15,

wherein the delay circuit obtains a delayed signal of the writing signal of the scanning direction beam of the second row.

17. (New) The two-dimensional beam writing position detecting device according to claim 15,

wherein the delay circuit obtains an advanced signal of the writing signal of the scanning direction beam of the second row.

18. (New) The two-dimensional beam writing position detecting device according to claim 17,

further comprising a laser modulation circuit for aligning a writing position of a first row of a scanning direction beam on the photoconductor and a writing position of a second row of a scanning direction beam on the photoconductor in a sub-scanning direction of the photoconductor based on the delayed signal.

19. (New) The two-dimensional beam writing position detecting device according to claim 17,

further comprising a laser modulation circuit for aligning a writing position of a first row of a scanning direction beam on the photoconductor and a writing position of a second row of a scanning direction beam on the photoconductor in a sub-scanning direction of the photoconductor based on the advanced signal.

20. (New) A two-dimensional beam writing position detecting device, comprising:

an optical system for scanning a plurality of light beams on a photoconductor to form an electrostatic latent image, arranging the plurality of light beams in two dimensions, and slantingly

scanning the plurality of light beams for forming the electrostatic latent image on the photoconductor at a predetermined slant angle (θ) with respect to a scanning direction of the plurality of light beams; and

a detector for detecting the plurality of light beams for determining a first writing position of the plurality of light beams on the photoconductor, said detector comprising a light beam receiving surface,

wherein a longitudinal direction of the light beam receiving surface is disposed at an angle (θ 1) with respect to the scanning direction of the plurality of light beams for simultaneously detecting the plurality of light beams, and

wherein the angle (θ 1) is represented by an expression:

$$\theta 1 = \theta \pm \tan^{-1} [\text{a beam radius} / (\text{P2 x a number of beams of a primary scanning direction})]$$

where P2 in the expression is a beam pitch of a sub-scanning direction.

21. (New) The two-dimensional beam writing position detecting device according to claim 20,

wherein a length S1 of a light beam sub-scanning direction of the light beam receiving surface of the detecting device is greater than or equal to a value in which a beam diameter is added to a value in which a beam pitch P2 of the sub-scanning direction is multiplied by [(a number of beams of the sub-scanning direction)-1], and a length S2 of a light beam scanning direction of the light beam receiving surface is less than [(a beam pitch P1 of the scanning direction)-(a beam diameter)].

22. (New) A two-dimensional beam writing position detecting device, comprising:

means for scanning on a photoconductor by laser beams emitted from a semiconductor laser to form an electrostatic latent image and arranging a plurality of the laser beams in two dimensions and slantingly scanning the plurality of laser beams for forming the electrostatic latent image on the photoconductor at a predetermined angle (θ); and

means for detecting the plurality of laser beams for determining a first writing position of the plurality of laser beams on the photoconductor,

wherein a longitudinal direction of a light beam receiving surface of the means for detecting inclines at the substantially same angle (θ 1) as the slant scanning angle (θ) with respect to the perpendicular of a scanning direction of the plurality of laser beams.

23. (New) A two-dimensional beam writing position detecting method, comprising:

scanning on a photoconductor by laser beams emitted from a semiconductor laser to form an electrostatic latent image and arranging a plurality of the laser beams in two dimensions and slantingly scanning the plurality of laser beams for forming the electrostatic latent image on the photoconductor at a predetermined angle (θ); and

detecting the plurality of laser beams for determining a first writing position of the plurality of laser beams on the photoconductor,

wherein a longitudinal direction of a light beam receiving surface of a detecting device inclines at the substantially same angle (θ 1) as the slant scanning angle (θ) with respect to the perpendicular of a scanning direction of the plurality of laser beams.

AMENDMENTS TO THE DRAWINGS:

Figure 2 is amended to correct minor spelling errors in accordance with 37 C.F.R. § 1.83(a).

Attachments: Replacement Sheet (1)
Annotated Sheets Showing Changes (1)